



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/003,675

10/31/2001

Thomas D. Hanan

K35A1023

5322

35219 7590 03/19/2007
WESTERN DIGITAL TECHNOLOGIES, INC.
ATTN: SANDRA GENUA
20511 LAKE FOREST DR.
E-118G
LAKE FOREST, CA 92630

EXAMINER

POPHAM, JEFFREY D

ART UNIT

PAPER NUMBER

2137

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/003,675

Applicant(s)

HANAN, THOMAS D.

Examiner

Jeffrey D. Popham

Art Unit

2137

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Remarks

Claims 1-8 are pending.

Response to Arguments

1. Applicant's arguments filed 12/14/2006 have been fully considered but they are not persuasive.

Applicant argues that Hamlin does not teach performing within the disk controller an executable function that is characterized by the contents of the mailbox file. Hamlin teaches that a user/device may request authenticated access to the pristine area of the disk. Hamlin teaches that authentication can be performed within the disk drive by decrypting the user/device authentication information that was stored in the pristine area previously and comparing the stored authentication information with the authentication information provided with the request. If the match succeeds, access to the pristine area is granted, and the user/device is allowed to acquire and use the information stored within pristine area. With such successful authentication, the disk drive will thereafter decrypt data that the user wishes to access. If, however, authentication fails, access is denied, disallowing access and decryption of data in the pristine area. As can be seen, an executable function is only carried out when the user/device has been authenticated, based upon authentication information stored in the disk. If the user/device is not authenticated, the executable function is not carried out.

Referring still to Hamlin, another method of authentication is a challenge response sequence. In this case, when access is requested, the disk drive controller

engages in a challenge response type authentication. The drive generates a random challenge value that is sent to the host; the host being authenticated if it replies with the appropriate response value. Seen in Column 6, line 66 to Column 7, line 2, "the pristine area 8 stores information used to generate the random challenge value sent to an external entity as well as information for verifying the response value received from the external entity." Clearly shown, when the host requests access to pristine area, in this embodiment, the disk drive can access the pristine area to obtain information used to generate a random challenge that is sent to the host. Once the host responds with a challenge response, the disk drive accesses the pristine area once again in order to obtain information used to verify the response that was received from the host.

Applicant also argues that Nozawa does not teach performing, within a disk controller, an executable function characterized by contents of a mailbox file. Column 6, line 35 to Column 7, line 7 of Nozawa teaches obtaining an encrypted data key from the disk drive, via the disk controller, and generating the raw data key from such. Column 7, lines 3-27 teaches the disk controller decrypting and decompressing the data corresponding to the key, and sending this data to the upper rank apparatus. Specifically, Column 7, lines 11-16 teaches that the drive controller reads the encrypted data corresponding to the key and "decrypts the encrypted data in accordance with an algorithm controlled by the raw data key". The particular executable function performed by the disk controller (encryption algorithm) is controlled by the key, which was read from the disk; and, thus, Nozawa teaches that the executable function is characterized by contents of a mailbox file.

Applicant also argues that there is no motivation to combine Torrubiya-Saez and Nozawa; and that there is no suggestion in Torrubiya-Saez to enable the disk drive to perform an executable function characterized by the contents of a mailbox file. As noted in the rejection of claim 4, Torrubiya-Saez does not disclose that the disk drive can perform an executable function characterized by contents of the mailbox file. Nozawa, however, does disclose that the disk drive can perform an executable function characterized by contents of the mailbox file, as seen in Column 5, line 21 to Column 7, line 27, as well as the above arguments. The benefits and motivation for incorporating such abilities from Nozawa into the system of Torrubiya-Saez are to offload the troublesome processing of ordinary data encryption/decryption from the host to the disk drive, so that an increase of the burden on the host in connection with data security can be greatly reduced and the secrecy of data to be stored in an external storage device can be secured without degrading the throughput of the system, and to improve security of the whole system, as seen in Column 8, line 44 to Column 9, line 45 of Nozawa.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Hamlin (U.S. Patent 7,003,674).

Regarding Claim 4,

Hamlin discloses in a computer system including a host computer, a disk drive host interface, and a disk drive having a disk controller, a method for accessing a mailbox file associated with a first range of disk drive host interface addressable locations, the method comprising the steps of:

Recognizing a command from a host operating system in reference to the mailbox file associated with the first range of disk drive host interface addressable locations (Column 5, line 58 to Column 7, line 27);
and

Responding to the command by performing within the disk controller an executable function characterized by the contents of the mailbox file (Column 5, line 58 to Column 7, line 27).

Regarding Claim 5,

Hamlin discloses that the first range of disk drive host interface addressable locations refers to a storage space allocated in at least one of a disk storage medium and a computer memory associated with the disk controller (Column 5, line 58 to Column 7, line 27).

Regarding Claim 6,

Hamlin discloses that the mailbox file contains encrypted information (Column 5, line 58 to Column 7, line 27).

Art Unit: 2137

3. Claims 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Nozawa (U.S. Patent 5,235,641).

Regarding Claim 4,

Nozawa discloses in a computer system including a host computer, a disk drive host interface, and a disk drive having a disk controller, a method for accessing a mailbox file associated with a first range of disk drive host interface addressable locations, the method comprising the steps of:

Recognizing a command from a host operating system in reference to the mailbox file associated with the first range of disk drive host interface addressable locations (Column 6, line 35 to Column 7, line 7);
and

Responding to the command by performing within the disk controller an executable function characterized by the contents of the mailbox file (Column 7, lines 3-27).

Regarding Claim 5,

Nozawa discloses that the first range of disk drive host interface addressable locations refers to a storage space allocated in at least one of a disk storage medium and a computer memory associated with the disk controller (Column 6, line 35 to Column 7, line 27).

Regarding Claim 6,

Nozawa discloses that the mailbox file contains encrypted information (Column 6, line 35 to Column 7, line 27).

4. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Rao (U.S. Patent 5,812,883).

Rao discloses in a computer system including a host computer, a disk drive host interface, and a disk drive having a disk controller, a method for accessing a mailbox file associated with a first range of disk drive host interface addressable locations, the method comprising the steps of:

Recognizing a command from a host operating system in reference to the mailbox file associated with the first range of disk drive host interface addressable locations (Column 4, line 55 to Column 5, line 18; and Column 6, line 46 to Column 7, line 48); and

Responding to the command by performing within the disk controller an executable function characterized by the contents of the mailbox file (Column 2, line 13 to Column 3, line 20; Column 4, line 55 to Column 5, line 18; Column 6, line 46 to Column 7, line 48; and Column 8, lines 36-51);

Wherein the mailbox file includes at least one of a command that is to be executed by the disk controller, and an address of a command that is to be executed by the disk controller (Column 2, line 13 to Column 3, line 20; Column 4, line 55 to Column 5, line 18; Column 6, line 46 to Column 7, line 48; and Column 8, lines 36-51).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Torrubia-Saez (U.S. Patent 6,966,002) in view of Nozawa.

Torrubia-Saez discloses in a computer system including a host computer, a disk drive host interface, and a disk drive having a disk storage medium with a first range of disk drive host interface addressable locations, a method for installing a mailbox file associated with the disk storage medium, the installation method comprising the steps of:

Obtaining a disk drive access key from an access key server, the access key being generated by the access key server as a function of an identifying characteristic of the disk drive (Column 18, lines 22-57);

Creating a mailbox file in the first range of addressable locations using the access key obtained from the access key server (Column 7, lines 28-48; and Column 18, lines 40-57); and

Notifying the disk drive of a location of the mailbox file in the first range of addressable locations (Column 17, lines 25-63);

But does not disclose that the disk drive can perform an executable function characterized by contents of the mailbox file.

Nozawa, however, discloses obtaining a disk drive access key, creating a mailbox file in the first range of addressable locations using the access key, and that the disk drive can perform an executable function characterized by contents of the mailbox file (Column 5, line 21 to Column 7, line 27). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the file cryptographic system of Nozawa into the software distribution system of Torrubia-Saez in order to offload the troublesome processing of ordinary data encryption/decryption from the host to the disk drive, so that an increase of the burden on the host in connection with data security can be greatly reduced and the secrecy of data to be stored in an external storage device can be secured without degrading the throughput of the system, and to improve security of the whole system (Column 8, line 44 to Column 9, line 45).

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torrubia-Saez in view of Nozawa, further in view of Vogt (U.S. Patent 6,681,304).

Regarding Claim 2,

Torrubia-Saez as modified by Nozawa does not disclose that the function is used to access a second range of addressable locations that are not disk drive host interface addressable and that are contained on the disk storage medium.

Vogt, however, discloses that the function is used to access a second range of addressable locations that are not disk drive host interface addressable and that are contained on the disk storage medium (Column 2, lines 20-31; and Column 3, lines 33-42). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the hidden storage system of Vogt into the software distribution system of Torrubia-Saez as modified by Nozawa in order to only allow access to private information when an appropriate password (key) is entered, so as to hide this information from malicious users and programs.

Regarding Claim 3,

Torrubia-Saez as modified by Nozawa and Vogt discloses the method of claim 2, in addition, Vogt discloses that the access key is required for an application program to access the second range of addressable locations via the mailbox file (Column 2, lines 20-31; and Column 3, lines 33-42).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rao in view of Torrubia-Saez.

Rao discloses in a computer system including a host computer, a disk drive host interface and a disk drive having a disk storage medium with a first

range of addressable locations, a method for installing a mailbox file associated with the disk storage medium, the installation method comprising the steps of:

Creating a mailbox file in the first range of addressable locations (Column 2, line 13 to Column 3, line 20; Column 4, line 55 to Column 5, line 18; Column 6, line 46 to Column 7, line 48; and Column 8, lines 36-51); and

Notifying the disk drive of a location of the mailbox file in the first range of addressable locations, wherein the disk drive can perform an executable function characterized by contents of the mailbox file (Column 2, line 13 to Column 3, line 20; Column 4, line 55 to Column 5, line 18; Column 6, line 46 to Column 7, line 48; and Column 8, lines 36-51);

Wherein the mailbox file includes at least one of a command that is to be executed by the disk controller, and an address of a command that is to be executed by the disk controller (Column 2, line 13 to Column 3, line 20; Column 4, line 55 to Column 5, line 18; Column 6, line 46 to Column 7, line 48; and Column 8, lines 36-51);

But does not explicitly disclose obtaining a disk drive access key from an access key server, the access key being generated by the access key server as a function of an identifying characteristic of the disk drive, and that the file is created using the access key obtained from the access key server.

Torrubia-Saez, however, discloses obtaining a disk drive access key from an access key server, the access key being generated by the access key server as a function of an identifying characteristic of the disk drive, and that the file is

Art Unit: 2137

created using the access key obtained from the access key server (Column 18, lines 22-57). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the secure distribution system of Torrubia-Saez into the disk drive control system of Rao in order to allow the system to obtain updates to the disk drive utilities from a server that distributes the updates in encrypted form such that only the entity that requested the utility and was provided with the proper decryption key can obtain use of the utility, thereby providing a secure method by which to distribute updates to utilities.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2137

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey D. Popham whose telephone number is (571)-272-7215. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571)272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey D Popham
Examiner
Art Unit 2137


EMMANUEL L. MOISE
SUPERVISORY PATENT EXAMINER